

IN THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Currently Amended) A device comprising:

a first antenna;

a second antenna;

an antenna switching function using a probabilistic approach communicatively coupled to the first and second antennas capable of operating in a dual-antenna mode for providing diversity capabilities;

a first wireless telecommunications function communicatively coupled to the antenna switching function;

a second wireless telecommunications function communicatively coupled to the antenna switching function; and

an arbitration function, communicatively coupled to the antenna switching function and the first and second wireless telecommunications functions, and adapted to directly control the first and second wireless telecommunications functions and access to the first and second antennas by the first and second wireless telecommunications functions according to a defined prioritization scheme of a plurality of assumptions and priorities based on an end-use application, wherein the arbitration function is provided on a packet-by-packet basis.

2. (Original) The device of claim 1, wherein either or both of the first or second wireless telecommunications functions may require simultaneous access to both the first and second antennas.
3. (Original) The device of claim 1, wherein the first wireless telecommunications function comprises a wireless LAN technology.
4. (Original) The device of claim 3, wherein the wireless LAN technology comprises a wireless LAN according to IEEE 802.11g standards.
5. (Original) The device of claim 3, wherein the wireless LAN technology may require simultaneous access to both the first and second antennas.
6. (Original) The device of claim 1, wherein the second wireless telecommunications function comprises a Bluetooth wireless technology.
7. (Original) The device of claim 1, wherein the antenna switching function is implemented as an independent structure.
8. (Original) The device of claim 1, wherein the antenna switching function is integrated with the arbitration function.
9. (Original) The device of claim 1, wherein the arbitration function is implemented as an independent structure.
10. (Original) The device of claim 1, wherein the arbitration function is integrated with at least a portion of either the first or second wireless telecommunications functions.
11. (Original) The device of claim 1, wherein the arbitration function is adapted to control access by forcing radio silence at least one of the first or second wireless telecommunications functions.

12. (Original) The device of claim 1, wherein the defined prioritization scheme comprises an access contention function.

13. (Original) The device of claim 12, wherein one of the first or second wireless telecommunications functions is adapted to trigger the access contention function.

14. (Previously Presented) A method of providing simultaneous operation of disparate wireless telecommunication technologies within a single device, comprising the steps of:

providing a device having a plurality of antennas;

providing an antenna switching function communicatively coupled to the plurality of antennas capable of operating in a dual-antenna mode for providing diversity capabilities;

providing a first wireless telecommunications function communicatively coupled to the antenna switching function;

providing a second wireless telecommunications function communicatively coupled to the antenna switching function;

providing an arbitration function using a probabilistic approach communicatively coupled to the antenna switching function and the first and second wireless telecommunications functions, wherein the arbitration function is provided on a packet-by-packet basis;

providing a defined prioritization scheme comprised of a plurality of assumptions and priorities based on an end-use application; and

utilizing the arbitration function to directly control the first and second wireless telecommunications functions and access to the plurality of antennas by the first and second wireless telecommunications functions according to the defined prioritization scheme.

15. (Original) The method of claim 14, wherein the antenna switching function allocates access to an antenna by the first or second wireless telecommunications function under control of the arbitration function.

16. (Original) The method of claim 14, wherein either or both of the first or second wireless telecommunications functions may require simultaneous access to multiple antennas.

17. (Original) The method of claim 14, wherein the step of providing a first wireless telecommunications function further comprises providing a wireless LAN technology.

18. (Original) The method of claim 17, wherein the wireless LAN technology comprises wireless LAN technology according to IEEE 802.11g standards.

19. (Original) The method of claim 17, wherein the wireless LAN technology may require simultaneous access to multiple antennas.

20. (Original) The method of claim 14, wherein the step of providing a second wireless telecommunications function further comprises providing a Bluetooth wireless technology.

21. (Original) The method of claim 14, wherein the step of providing an arbitration function further comprises providing hardware implementing an arbitration function.

22. (Original) The method of claim 14, wherein the step of providing an arbitration function further comprises providing software implementing an arbitration function.

23. (Original) The method of claim 14, wherein the step of utilizing the arbitration function to control access further comprises utilizing the arbitration function to disable radio transmission of at least one of the first or second wireless telecommunications functions.

24. (Original) The method of claim 14, wherein the step of providing a defined prioritization scheme further comprises providing an access contention function.
25. (Original) The method of claim 24, wherein one of the first or second wireless telecommunications functions may initiate the access contention function.
26. (Original) The method of claim 24, wherein the step of providing an access contention function further comprises providing a bias mechanism.
27. (Original) The method of claim 26, wherein the step of providing a bias mechanism comprises providing a bias in favor of the first wireless telecommunications function.
28. (Original) The method of claim 26, wherein the step of providing a bias mechanism comprises providing a bias in favor of the second wireless telecommunications function.
29. (Original) The method of claim 14, wherein the step of providing a defined prioritization scheme further comprises providing first priority to speech communications over one of the wireless telecommunications functions.
30. (Original) The method of claim 14, wherein the step of providing a defined prioritization scheme further comprises providing for simultaneous transmission by the first and second wireless telecommunications functions.
31. (Original) The method of claim 14, wherein the step of providing a defined prioritization scheme further comprises providing for simultaneous reception by the first and second wireless telecommunications functions.